

This listing of claims will replace all prior versions  
and listings of claims in the application:

**LISTING OF CLAIMS**

-1- (Currently Amended)

1           A mesostructured crystalline hydrated alumina  
2           composition which is microporous and consists essentially  
3           of boehmite with atomically ordered walls forming  
4           mesopores and exhibiting at least one low angle x-ray  
5           diffraction line corresponding to a lattice spacing of at  
6           least 2.0 nm and multiple wide angle x-ray diffraction  
7           lines with  $\text{CuK}\alpha$  radiation wherein  $\lambda$  is 0.1541 nm  
8           corresponding to an ordered lattice comprised of oxygen  
9           atoms and hydroxide groups with aluminum in interstitial  
10          positions within the lattice, wherein the surface area is  
11          at least 200  $\text{m}^2/\text{g}$ ; and wherein the pore volume is at least  
12          0.40  $\text{cm}^3/\text{g}$ , wherein the boehmite is formed by mixing an  
13          amorphous hydrated alumina and an organic modifier which  
14          forms the mesostructure and then heating the mixture so  
15          that the boehmite is completely formed and then removing  
16          water and the organic modifier to provide the  
17          composition.

Claim 2 (Cancelled)

-3- (Currently Amended)

1           A mesostructured crystalline hydrated alumina  
2       composite composition with mesopores containing an  
3       organic modifier in the mesopores of the alumina wherein  
4       the alumina composition consists essentially of boehmite  
5       with atomically ordered walls forming mesopores and  
6       exhibits at least one low angle x-ray diffraction line  
7       corresponding to a lattice spacing of at least 2.0 nm and  
8       multiple wide angle x-ray diffraction lines corresponding  
9       to an ordered lattice comprised of oxygen atoms and  
10      hydroxide groups with aluminum in interstitial positions  
11      within the lattice, wherein the boehmite is formed by  
12      mixing an amorphous hydrated alumina and the organic  
13      modifier which forms the mesostructure and then heating  
14      the mixture so that the boehmite is completely formed to  
15      provide the composition.

-4- (Previously Amended)

1           The composition of Claim 3 wherein the organic  
2       modifier is a non-ionic surfactant.

-5- (Previously Amended)

1                   The composition of Claim 4 wherein the  
2           surfactant is selected from the group consisting of a  
3           polyethylene oxide block co-polymer, an alkylene amine;  
4           an alkylene polyamine, a polypropylene oxide amine, a  
5           polypropylene oxide polyamine and mixtures thereof.

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-6- (Previously Amended)

- 1                   The composition of any one of Claims 3, 4 or 5
- 2           wherein the hydrated alumina component is boehmite.

-7- (Currently Amended)

1           A mesostructured crystalline transition alumina  
2           composition comprising gamma alumina and:

3           wherein the composition exhibits at least one  
4           low angle x-ray diffraction line corresponding to a  
5           lattice spacing of at least 2.0 nm and derived from a  
6           boehmite with atomically ordered framework walls forming  
7           mesopores multiple wide angle x-ray diffraction lines  
8           with CuK $\alpha$  radiation wherein  $\lambda$  is 0.1541 nm corresponding  
9           to an ordered oxygen atom lattice with aluminum in  
10          interstitial positions within the lattice, wherein the  
11          surface area is at least 200 m<sup>2</sup>/g; and wherein the pore  
12          volume is at least 0.40 cm<sup>3</sup>/g, wherein the boehmite is  
13          formed by mixing an amorphous hydrated alumina with an  
14          organic modifier which forms the mesostructure, heating  
15          the solution so that the boehmite is completely formed,  
16          then removing water and the organic modifier from the  
17          mesostructured boehmite, and then calcining the  
18          mesostructured boehmite to form the gamma alumina  
19          composition.

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-8- (Previously Amended)

1                   The mesostructured transition alumina of Claim  
2           7 wherein the transition alumina consists essentially of  
3           gamma alumina.

Claims 9 - 26 (Cancelled)